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AZC208T iron ore detector (magnetic detector)

AZC208T intelligent magnetic detector is the another upgrade product based on ALZ280 magnetic detector. It is integrated, all-solid-state and intelligent, most materials are imported, the probe even applies latest American technology, then it has high resolution and accuracy, and can calibrate the surrounding interfered magnetic field.

The display uses a powerful PDA, which is touch screen with a stylus, you can write directly on it and then mark the measurement (the operation will be described in detail). The working method is to transmit the magnetic strength measured by the probe to the PDA through RS232 port communication line, then the PDA will do data graphic processing and display measurement &disposal results.

AZC208T intelligent magnetic detector can do magnetic survey of iron ore, nonferrous metal deposit and buried ferromagnetic objects, such as: water pipe, cast iron pipe, reinforced concrete pipe and urban underground basic facilities pipe etc. It also can do magnetic prospecting of petroleum, coal and mixed ore deposit containing ferromagnetism.

Combining your professional knowledge on geophysical exploration, we can do exact estimation on iron ore deposit, range, buried depth and grades according to measured data supplied by AZC208T magnetic detector.

Its biggest features:

1. Portable, simple operation and high intelligentization.
2. All-solid-state, hard to damage and simple daily maintenance.
3. High resolution, high accuracy, wide measurement range and stable performance.
4. Strong anti-jamming ability.
5. Build-in temperature compensation calibration.
6. Communicate with computer: the data can be transmitted to a PC for analysis.
7. Map graphs automatically and show ore vein profile graphs directly.
8. Big data storage capacity: it can store data of 80000 points.

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Features:

1. Small volume, light weight, stable and reliable performance, good portability.
2. Simple and easy to learn, you can master it within 5 minutes even without professional knowledge.
3. It is all-solid-state due to the usage of all-solid-state electronic circuits and integrated sensor chip, no mobile parts. No need silicone oil in probe for damping, then its anti-impact and anti-vibration ability is higher then tradition magnetometers.
4. High-resolution: 0.1nT~1nT
5. Build-in temperature compensation: automatic calibration to error caused by temperature change.
6. Communicate with computer: the data can be transmitted to a PC as the basis for mapping and analysis.
7. Small power consumption: total machine power consumption:55mA~75mA.
8. AZC208T magnetic detector can measure when inclined, converted and transverse, transport well. While fluxgate magnetometers can not be inclined and converted in transit and outside measurement because of silicone oil filled in probe.
9. Wide range up to ±100000nT (is the widest range at present). No need to set grade and shifting, which is more convenient than manual shifting in fluxgate magnetometers.
10. Automatic record and save data: it records the time and magnetic strength when measurement. With the stylus, you can record all the measured magnetic strength at any place and any time. Then it doesn't only reduce the labor strength, but also enhance the accuracy of recording.
11. Display is big screen LCD with backlight, which can be also used at night. You can also adjust contrast ratio as per your condition to make the display more clear. Press the power switch of PDA for 2s then loose, backlight will appear, then press power switch for 2s and loose can close backlight. There is a small circle like sun near the right down pentagram shortcut, click it then you can adjust screen brightness and backlight.
12. Screen is touching LCD, you can use stylus to input characters on the screen or mark measurement status.
13. Automatic voltage alarm: when the power of probe and display are lack, then alarm tips will appear on the screen.
14. The power of probe and display is large-capacity rechargeable lithium batteries: with 1100mA capacity.
15. Long power usage life: once charging to probe, it can work for no less than 10h continuously.
16. Fast charging speed: charging to display for 3~4h will be full, the same to the probe, and it has over-charging protection when charging.
17. The display is energy-saving. If you don't do operation to the screen, the display will shut automatically to save energy. You can set the time upon your need through control panel.
18. Big data storage capacity: it can store data of 80000 points, and you can view the former data at any time. While traditional magnetometers can just store 2000~3000 points.

19. Profile curves of magnetic field strength in the measurement region can be given directly from the data, and then the prospectors can get idea about the magnetic field changing trend, also determine whether there is any bedrock existence and value of exploration.
20. Dynamic show of the difference can see the variation value of magnetic intensity directly.
21. Two measurement modes: roughly detect and fine detect. The roughly detect can improve speed, while you can conduct a detailed analysis by fine detect. The 2 modes can also be combined.
22. The PDA also has the functions of calculator, address book, notebook, text editing, E-mails receiving &sending, Internet surfing, infrared transmission and also can connect with PC.

Main technical parameters:

Detection objects range:

Direct prospecting: magnetite, maghemite, vanadic titan magnetite and gold-copper magnetite etc.
Indirect prospecting: metal deposit containing nickel, chrome, cobalt and so on;
Ferromagnetic metal objects prospecting;
Detect axial: geomagnetic field vertical or horizontal component.
Measuring range:-100000nT~+100000 nT
Resolution: 0.1nT~1nT
Accuracy: <± 0.5% (full range)
Measurement method: full range direct measurement without coarse adjustment, accurate adjustment and shifting.
Data storage capacity: 80,000 points
Data acquisition frequency: 80 times per second;
Whole power consumption: 55mA~75mA,
Power supply: 1100mA big-capacity rechargeable lithium batteries,
Working temperature: -10 ℃~+50 ℃, built-in temperature compensation.
Display mode: large-screen LCD show the difference value with backlight, brightness is adjustable;
Probe size: Φ88mm*60mm
Rough measurement strut size: Φ18mm*1000mm
Power data line: 1.5m
Probe weight: 0.6 Kg
Display weight: 0.3Kg

System composition:

AZC208T probe	1 unit
PDA with display	1 set
Special tripod	1 suit
Power data line	1 piece
Coarse measurement system	1 suit

Special toolbox 1 unit
Special charger 2 units
Technical files:
1)AZC208T magnetic detector user manual (English version) 1 copy
2)AZC208T magnetic detector certificate 1 copy
3)PDA user manual 1 copy
4)PDA application software CD 1 piece
5)AZC208T magnetic detector software CD 1 copy

(Overall appearance)

(open the toolbox)

Use method:

The principle is to judge the exist of magnetic objects through measuring variation quantity of earth vertical magnetic components.
Note: you should open probe power as usage, then open PDA power after green light flicking. When shutting, you should first turn off PDA power, then turn probe power off.

1. Coarse measurement

1.1. Connection

As Graph1 to fix the probe on rod, then connect chargeable power data line with display (PDA). (Note: fix the probe on pallet and aim the indication line of probe to that of pallet. After confirming the abnormity measured by coarse measurement, then let probe towards to one fixed direction and fasten it by securing screws.)

Graph 1

Graph 2

1.2. Warm-up, direction seeking and leveling

Open probe power switch and pre-warm for 10~15min to let equipment enter into best working state. Rotary strut makes the indication line of pallet align to finger of compass (either south or north is OK), then let pallet level by adjusting level bubble of pallet, the probe will be also horizontal. Point pallet to a certain direction as direction seeking, then please aim to this position in future measurement.

1.3. Enter into measurement interface

Open PDA power switch and observe the appeared interface as Graph 2, click "Prospector" icon and enter Graph 3, then enter interface as Graph 4 after 3s. There are 2 icons of "coarse measurement" and "fine measurement" on left of Graph 4 interface, also "new area" icon on right, which is the area you will measure. Because geomagnetism benchmark in each area is different, then we need set new area benchmark. (Note: when setting, you should apart from objects which will cause magnetic abnormity like mines, HV cable, underground cable and magnet, also try your best to reduce interference) If the menu is not in application procedure choice after opening, then please click bottom left "Home" icon to enter main application procedure choice interface.

Graph 3

Graph 4

1.4. Setting benchmark

Choose "coarse measurement" in Graph 4 (the default is coarse measurement method once entering measurement interface), then "coarse measurement" icon will be dark, then click "new area", probe will work, the benchmark setting is completed after 2s, as Graph 5, you will see the benchmark value appeared back of "benchmark" icon.

Graph 5

Graph 6

1.5. Field coarse measurement

When arriving, just click "start" button and move probe, then field measurement begins. **(Note: you must keep probe on pallet level and on North indicated by the compass in field measurement, which is the same to benchmark setting, or there is no comparison between measured value and benchmark value)** The current magnetic strength abnormity change value will show back to "Data" on top left as Graph 6. The value after "Data" icon is the difference between benchmark and vertical component of geomagnetism for the point. If the change is very acute (above 6000nT), you can click "Stop" to halt the coarse measurement. Then apply fine measurement to do survey and further confirm the abnormity. The operation is very simple and fast, can largely boost the speed, which is a browsing magnetic observation method. **(Note: When move please keep the direction of probe and compass be the same and let the pallet level. The data of coarse measurement will not be stored.)**

2. Fine measurement (4-point orthogonal method)

2.1. Leveling

Place the tripod! There is a bubble in tripod, if the surface is uneven, you can adjust it to level by flexing length of 3 legs, then let the bubble in middle by adjusting 3 trimming screws. After that, put the probe on platform, then connect probe and display with data line, as Graph 7.

Graph 7

Graph 8

2.2. Pre-warm

Open the probe power to pre-warm for 10~15min to enter best work state.

2.3. Benchmark setting

First enter Graph 4 interface and choose “Fine measurement”, then the icon will be dark. Click “New area” then the tip will ask whether use the former benchmark as Graph 8, choose “No”, then you need to establish new benchmark as Graph 9. And let the indication line of probe aim at any one of the 4 lines on platform, click “0 degree”, the probe will work. After 1~2s, Graph 10 will appear, then rotate the probe for 90 degree to let probe indication line aim at other line, click “90 degree”, it will enter into Graph 11 after 1~2s. Like this, then click “180 degree” and then “270 degree”. After 1~2s, the benchmark is set, the current benchmark value will display after the benchmark icon at left top, as Graph 13. Before setting the benchmark, you can mark the value by clicking “Memory”, then a flicking cursor will appear, then click the abc at left bottom, Graph a interface will appear. Click the arrow to left at right bottom to cancel the word “memory”, then you can write the remarks content by the stylus. Click “Complete” to return Graph 9 interface, then click “0 degree” to start setting benchmark. After the benchmark setting is OK, the marked content input just now will display.